

# Chapter 6

## Waste Recycling

### Introduction

This chapter reviews urban and rural residential recycling and organics collection programs as well as non-residential (institutional, commercial and industrial) programs. Existing conditions are documented, needs and opportunities reviewed, and potential policies are presented for each of these service sectors. Washington State Department of Ecology (Ecology) planning requirements for designating urban/rural service areas and residential recycling materials are also addressed in this chapter.

### Why Recycle?

Recycling conserves both resources and energy and can reduce the use of toxic chemicals in product manufacturing. A large portion of the wastes that are generated in the County can be recycled into feedstocks for new product manufacturing. Recycling conserves water, wildlife habitat and air quality, all of which contribute to public health and preservation of species. Recycling has created jobs, many in small businesses benefiting local economics.

The Washington State legislature recognized in passing the Waste Not Washington Act that “Considerations of natural resource limitations, energy shortages, economics and the environment make necessary the development and implementation of solid waste recovery and/or recycling plans and programs.” The legislature made recycling the next priority after reducing waste and reusing waste materials. The County’s programs have focused on those materials that are cost effective to separate from the waste stream. As a result, Clark County’s recycling programs have saved hundreds of thousands of dollars for ratepayers over the last 8 years.

### The Waste Not Washington Act

In 1989, the Washington State Legislature passed the Waste Not Washington Act, resulting in major changes in the way Washington communities manage their wastes, including a revision of waste management priorities. These priorities in descending order, as expressed in RCW 70.95010(8), include:

- Waste reduction;
- Recycling, with source separation of recyclable materials as the preferred method;
- Energy recovery, incineration or landfilling of separated wastes;
- Energy recovery, incineration or landfilling of mixed wastes.

The legislation established three goals:

- To achieve a 50% recycling rate for the State of Washington by 1995;

- To make recycling as affordable and convenient to the ratepayer as mixed waste disposal;
- To consider source separation as a fundamental strategy.

## **Because Our Waste is Disposed in Oregon.....**

In addition to the requirements of the State of Washington, the State of Oregon requires all out-of-state local government jurisdictions that use Oregon solid waste disposal facilities to comply with Oregon statutes. Because waste generated in the County is disposed at the Finley Buttes Landfill near Boardman, Oregon, the County and cities must also meet the applicable Oregon Recycling requirements in the Oregon Administrative Rules (OARs), Division 60.

The foundation of Oregon recycling law is the 1983 Opportunity to Recycle Act (Oregon Revised Statute (ORS)459A) which requires a convenient drop-off recycling location for source-separated recyclables in cities of less than 4,000 residents and curbside collection of source-separated recyclables in cities with populations of 4,000 or more. The Act also includes a public promotion and education requirement that each person be notified of the opportunity to recycle and encouraged to source separate recyclables.

Oregon Senate Bill 66, passed in 1991, also applies to the County. This legislation effectively expanded the Opportunity to Recycle Act to include weekly curbside collection of recyclables with a durable recycling container provided. SB66 also expanded the promotion and education requirement. The Act required cities, with population of at least 4,000, but less than 10,000 to choose three elements from a list of eight to expand their recycling programs; cities of 10,000 or more, may choose to implement the first three elements on the list plus one more, or implement any five elements from the list. The program elements are:

- Durable recycling containers (i.e. curbside bins);
- Weekly curbside recycling collection, the same day as garbage collection;
- Expanded promotion and education;
- Collection of at least four principal recyclable materials from each multi-family housing complex, having five or more units;
- An effective residential yard debris collection and composting program;
- Commercial and institutional recycling or source-separated materials from firms employing ten or more individuals and occupying 1,000 square feet or more in a single location;
- Expanded recycling depots and expanded education to increase depot use;
- Residential solid waste collection rates that encourage waste reduction, reuse and recycling, through reduced rates for smaller containers and a rate which does not decrease on a per pound basis for large containers.

In addition to these requirements for local governments, Senate Bill 66 requires that landlords with five or more dwelling units, in cities that have implemented multi-family

recycling service, provide recycling containers, on-site collection service, and recycling information.

Recovery rate goals for Oregon counties, as specified in Senate Bill 66, vary with population. With regard to these goals, the Oregon Department of Environmental Quality (DEQ) considers Clark County to have similar characteristics to Portland metropolitan area counties, with a corresponding goal of 45 percent diversion of the County's total waste stream by 1995.

Clark County meets or exceeds all Oregon State requirements with the exception of meeting the diversion rate.

## **What is Clark County's Recycling Rate?**

Clark County and its cities and towns are committed to achieving a minimum recycling rate of 50% of the waste stream through a combination of public and private recycling activities. The recycling rate is the percentage of all waste generated by residents and businesses that is recycled and manufactured into new products. In 2000, the most recent year for which County data is available, at least 135,000 tons of materials were recycled from a total waste stream of 439,313 tons. The recycling rate was approximately 31%. This recycling rate excludes waste diversion methods that the EPA does not define as recycling. Examples of diversion, but not recycling, include using wood waste, used motor oil and tires for energy recovery or using glass as fill or drainage rock. A further discussion of the County's recycling rate/diversion rate and how the rates are calculated is provided in the chapter on *Waste Monitoring and Performance Measurement*.

By 2000, at least 135,000 tons of recyclables were redirected to re-manufacturing instead of disposal. This estimate is conservative. It represents only reported collection activities; it does not count internal recycling programs, in which retailers return recyclables to distribution centers outside of the County, and non-reporting collectors.

**TABLE 6-1: 2000 CLARK COUNTY RECYCLING AND DIVERSION RATES**

## Existing Conditions

Table 6-2 summarized service areas and populations served by recycling collection programs.

Table 6-2 Existing Clark County Recycling Collection Programs						
Jurisdiction	2000 Average Number of Households	Collection Frequency	Service Provider <sup>1</sup>	Contract Expiration Date	Monthly Household Price 2000	Mandatory Pay <sup>2</sup>
Battle Ground						
Single Family	2,408	Weekly	WCI		\$2.90	Yes
Multi Family		Variable	EWS		\$1.80	Yes
Yard Debris		EOW <sup>3</sup>	WMV		\$6.22	No
Camas						
Single Family	4,523	Weekly	EWS		\$2.30	Yes
Multi Family		Variable	EWS		\$2.30	Yes
Yard Debris		EOW	EWS		\$5.47	No
La Center						
Single Family (with garbage)	609	EOW	WCI	12/31/03	\$4.00	No
Single Family (w/o garbage)		EOW	WCI	12/31/03	\$4.30	No
Multi Family (with garbage)		Weekly	WCI	12/31/03	\$1.80	No
Multi Family (w/o garbage)		Weekly	WCI	12/31/03	\$2.10	No
Yard Debris						
Non-Urban Unincorporated						
Single Family (with garbage)	19,920	EOW	WCI	12/31/03	\$4.00	No
Single Family (w/o garbage)		EOW	WCI	12/31/03	\$4.30	No
Multi Family (with garbage)		Weekly	WCI	12/31/03	\$1.80	No
Multi Family (w/o garbage)		Weekly	WCI	12/31/03	\$2.10	No
Yard Debris						
Ridgefield						
Single Family	656	Weekly	WCI	5/31/11	\$2.55	Yes
Multi Family		N/A	WCI	5/31/11	\$2.59	
Yard Debris		Weekly	WCI	5/31/11	\$7.00	Yes
Urban Incorporated						
Single Family	33,419	Weekly	WCI	12/31/03	\$2.90	Yes
Multi Family		Variable	EWS	12/31/03	\$1.80	Yes
Yard Debris			WMV		\$6.22	No
Vancouver						
Single Family	36,779	Weekly	WCI	12/31/03	\$2.63	Yes
Multi Family		Variable	EWS	12/31/03	\$1.12	Yes
Yard Debris <sup>4</sup>		EOW	WMV	12/31/03	\$5.74	No
		EOW	WMV	12/31/06	\$5.74	No
Washougal <sup>5</sup>						
Single Family	2,858	Weekly	EWS			Yes
Multi Family		Variable	EWS			Yes
Yard Debris			EWS		\$5.47	No
Yacolt						
Single Family (with garbage)	343	EOW	WCI	12/31/03	\$4.00	No
Single Family (w/o garbage)		EOW	WCI	12/31/03	\$4.30	No
Multi Family (with garbage)		Weekly	WCI	12/31/03	\$1.80	No
Multi Family (w/o garbage)		Weekly	WCI	12/31/03	\$2.10	No
Yard Debris						

1 – WCI = Waste Connections Inc.; EWS = Evergreen Waste Systems, Inc. ( a wholly owned subsidiary of WCI), WMV = Waste Management of Vancouver

2. Mandatory Pay is the requirement to pay for recycling collection regardless of use. Where garbage collection is not mandatory, only those households subscribing to a specific frequency of garbage collection service are required to pay for recycling services.

3. EOW = Every other week

4. Vancouver has two separate contracts for yard debris collection with WMV, one for the east side and one for the west

5. Single family and multi-family recycling costs are built into garbage collection costs.

### **What Have We Achieved Since 1991?**

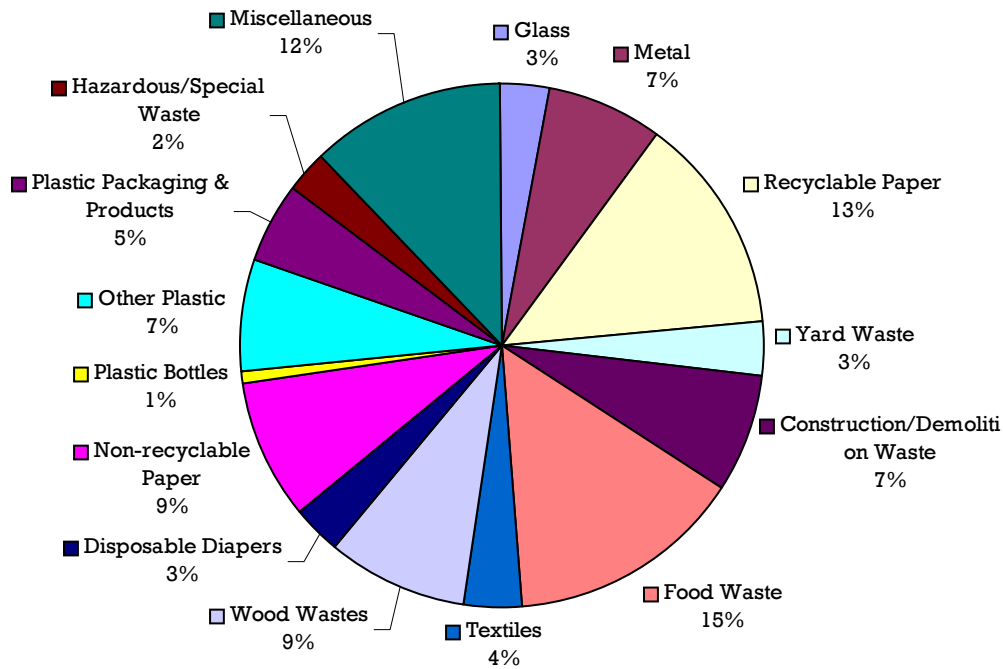
- Urban single-family curbside recycling collection programs were implemented in January 1991.
- Urban multi-family recycling collection programs were implemented in May 1993.
- Urban area yard debris collection was implemented in June 1994.
- Rural single-family curbside and multi-family recycling collection was implemented in March 1999.
- Drop-off programs have been on going, with varying services.

### **What is in Clark County's Waste?**

The composition of the County's waste has undergone substantial change during the past decade. The change is the result of steadily increasing recovery levels for cardboard, papers, metals and wood; changes in packaging; and changing consumer buying patterns. The shift in waste composition both confirms the success of existing source-separation programs and identifies opportunities for additional recovery. Figure 6-1 illustrates the composition of the garbage disposed by County households and businesses, according to a 1999 waste stream analysis. Additional information on waste stream quantities is available in the chapters on *Background and Waste Stream Characterization* and *Waste Monitoring and Performance Measurement*.

(\*Miscellaneous includes furniture, and inert materials.

Figure 6-1



All figures are percentages of weight. During 2000, Clark County businesses and households disposed of 233,113 tons of waste. Some of this waste, primarily wood and construction debris is recovered at the transfer station. 220,459 tons of waste was barged 180 miles to the Finley Buttes Landfill in eastern Oregon. Of this amount, 60,000 tons could have been recycled through existing curbside recycling and drop-off programs for glass, metal, recyclable paper and yard waste. The large percentage of wood waste and construction/demolition (C/D) wastes (16%) could be attributed to the County's fast-growing population and subsequent building boom. Likewise the increase in the percentage of plastic packaging and disposable diapers might be due to changing trends in packaging and consumption. Figures 6-1 demonstrates that an additional 30% of the County's waste could be recycled if wood, construction/demolition and food waste are included in programs.

## **Recycling Committee Recommendations**

In 1993, the County Solid Waste Advisory Committee established the Citizen's Recycling Committee, a sub-committee to review County waste reduction and recycling programs and to provide recommendations for improvement. The committee complete its review in 1994 and provided recommendations for single-family residential, multi-family residential, yard debris, rural recycling, waste reduction and non-residential programs. Recommendations included rate incentives for all sectors; additional plastics recycling; household containers for multi-family programs; the promotion of home composting and chipping and mulching mowers; further investigation of co-collection; and additional consideration of mandatory garbage and recycling services in unincorporated areas. Most of these recommendations have been incorporated as program improvements over the past several years.

## **Contracted Residential Recycling**

Contracted curbside collection is the predominant recycling method for both single-family and multi-family residential recycling within the Clark County urban service area. Subscription-based curbside recycling service is available in the rural areas. Single family households, including those with up to four attached dwellings with individual garbage collection, are provided three bins for collection: one for newspaper; one for mixed paper; and one for containers, including aluminum cans, glass, plastic bottles and polycoated paper. Cardboard, motor oil and scrap metal are placed next to the bins on collection days. Residents in multi-family housing are provided with in-home containers for storing and transporting their recyclables to labeled, wheeled carts in central collection areas within their complexes. As of 2000, 92,846 households – 66,559 single family and 26,287 multi-family – or 65% of Clark County's 142,859 households were provided with on-site recycling collection services.

## **What Can Be Recycled At the Curb?**

The Department of Ecology's 1990 Solid Waste Management Plan guidelines require planning jurisdictions to designate certain recyclables for inclusion in public recycling programs. The guidelines require that county solid waste management plans identify and apply criteria for evaluating various commodities to determine which recyclables can be efficiently and economically collected and marketed. A list of "designated recyclables" is then developed and used as a basis for determining materials included in curbside and drop-off recycling collection programs.

Clark County's 1994 Plan included a thorough analysis of various potential recyclables. Evaluation criteria included the potential for waste diversion; collection efficiencies; processing requirements; market conditions; market volatility; local market availability; continuity with existing programs; and Oregon recycling certification requirements. The 1994 Plan did not provide a specific list of designated recyclables. Instead, a matrix was developed that provided an overall assessment – low, medium and high – of each recyclable material. Recyclables that ranked "high" were included in County/city curbside collection programs. As a result, County/city recycling collection programs in Clark County accept one of the widest ranges of materials of all Washington curbside collection programs.

Other than price fluctuations, few material changes have occurred in recycling markets since the analysis was conducted for the 1994 Plan. The availability of a new plastics sorting facility in Salem, Oregon allowed the County and cities to add all plastic bottles, #1-#7, to household collection programs in 1995.

Clark County recycling collection programs can now be considered mature, with stable participation and recovery levels. For these reasons, the recycling designation conducted for the 1994 Plan is referred to in this Plan, and the following materials will be considered “designated residential recyclables” for the purpose of meeting Ecology planning guidelines:

- Aluminum cans and foil;
- Corrugated cardboard;
- Glass jars and bottles;
- Mixed paper;
- Motor oil (not included in the multi-family program);
- Newspapers;
- Plastic bottles, excluding those contaminated by hazardous materials;
- Polycoated paper (e.g. milk cartons and drink boxes);
- Scrap metal;
- Tin cans;
- Yard Debris

Yard debris is separately collected from urban area single-family residences on a subscription basis.

Additional materials will be considered on a case-by-case basis, as emerging markets become available. Potential additions include textiles, rigid plastic containers (e.g. tubs), household food waste, pre-consumer business food waste, ceramics and (non-container) glass. Concrete, asphalt and brick are currently recycled from construction and demolition projects. These materials might be currently recyclable, but are not necessarily appropriate to include as designated recyclables at this time.

The number of materials collected by Clark County programs meets and exceeds Oregon DEQ certification standards required for the export of Clark County waste. Any changes to the list of designated recyclables at this time.

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## **Processing of Recyclables**

The County's contract with CRC requires that residentially collected recyclables be delivered to – and processed by – CRC. The original contract included cost recovery and revenue sharing procedures that proved cumbersome. The relevant section of the contract was amended, effective January 1, 1996, to simplify CRC's compensation to \$30 per ton of received materials, plus 30% of the net revenue from the sale of materials. CRC pays Clark County, the City of Vancouver or the City of Ridgefield the remaining 70% of net revenues. The same 1996 contract amendment allows the County or city to redirect residential recyclables to another facility after 2002, provided that CRC is allowed a right of "last offer" to meet any competing offer.

Recycling collection services are supported by County and city promotion and education efforts, as described in the chapter on *Education and Promotion*. Variable rate structures are discussed in the chapter on *Waste Collection*.

## **Collection Required Within Urban Service Areas, Optional in Rural Areas**

Ecology's 1990 planning guidelines require Plans to identify urban service areas for the purpose of determining:

- Required recycling and yard debris collection services for urban areas;
- Voluntary services for rural areas.

Clark County has had an urban service area boundary since 1979. This service boundary was initially used to define areas for sewer (urban) and septic (non-urban) usage, but later provided a basis for determining, which areas of the County were suitable for a wider range of urban-level services. In 1991, the County used this boundary – most recently revised in 1990 – to define its contracted curbside recycling collection service area for unincorporated areas. This urban service area boundary was replaced by the Urban Growth Boundary (UGB), later developed through Clark County's Growth Management Act – directed planning process. With few exceptions, households are required to pay for recycling services within this Urban Growth Boundary.

## **Urban Residential Organic Wastes**

Organic waste (or "organics") is a broad term which includes yard debris, pre- and post-consumer food waste, contaminated non-recyclable papers, such as tissue and used coffee filters and other potentially compostable source-separated materials. Recovered organics need not be composted to be diverted from disposal. For example, some pre-consumer food wastes and food processing by-products can be turned into animal feeds or other products by using processes other than composting. Organics are different from other recyclable materials in that they often can be managed and used at home by residents. The County actively promotes backyard composting as a waste reduction method as described in the chapter on *Waste Reduction*. Backyard composting avoids the economic and environmental costs of operating collection systems and centralized processing facilities. However, not all residents have the ability or desire to compost their yard debris and/or other organics at home. For those residents, collection services are important.

To date, Clark County has focused its efforts on recovery yard debris. Yard debris is an easily understandable component of solid waste, is easily handled by existing collection equipment can be composted in relatively low cost open windrow facilities or used as a source of fuel in industrial burners. Other organic materials, such as food wastes, require more work to ensure proper source-separation, proper containers to deter odors prior to collection and dedicated composting or processing facilities. No such facilities exist at this time. All single-family residences within the County's defined Urban Growth Area have yard debris collection available. In Clark County, participants subscribe and pay directly for yard debris collection. Yard debris is collected in wheeled carts, with extra quantities handled in bags or marked containers. Waste Management of Vancouver services the Greater Vancouver and Battle Grounds areas at a fee of \$6.22 per month for every other week collection of a 64-gallon cart and up to one additional 32-gallon can or Kraft paper bag. Evergreen Waste Systems serves the Camas/Washougal area at a fee of \$5.47 per month for every-other-week collection of one 90-gallon cart (prices based on 2000). Both collection schedules are maintained throughout the year.

The prices for collection are based on 2000 charges and are annually adjusted for inflation. Approximately 24,479 residences or 38% of the 67,097 residences subscribe to yard debris collection. Approximately 17,000 tons of yard debris were collection in 2000, equal to approximately 115 pounds per subscriber per month. This recovery rates does not necessarily equal per-household recovery, because neighbors may combine their yard waste under one subscription.

The remaining urban residences, and all rural residences, may use backyard composting to manage these materials, self-haul to composting facilities, burn the wood debris (if outside of the south County burn ban area) or dispose of yard debris in their garbage (yard debris disposal is currently not restricted in Clark County). A 1997 County survey of 327 residents indicated that 52% compost at home, 10% dispose of yard debris in their garbage, 5% burn, 19% use curbside yard debris services, 10% said they had no yard debris and the remainder gave other responses.

Collected material is transported one of several yard debris composters in the Clark County/Portland Metro area or sent to Fort James to be used as a fuel source. Residents with large quantities of yard debris, such as branches, may self-haul their materials. CRC has recently expanded their handling capabilities and accepts source-separated yard debris at a tipping fee of \$48.00 per ton (at West Van) or \$55.00 per ton (at CTR). H&H Wood Recyclers, Inc., McFarlane's Bark and Triangle Resources all accept yard debris for prices that range from \$5.00 to \$6.00 per yard. These businesses compost, process and/or transfer yard debris on their respective sites. There is more discussion of yard debris and other organic wastes in the Organic Wastes Chapter.

## **Rural Residential Recycling**

Since January 1, 1999 single-family and multi-family residents in rural Clark County, those outside of the UGB, have had curbside recycling available through a subscription-based program. Single-family and multi-family collection service in the rural area is defined by the type of containers provided for collection. Households with bins are designated as single-family service, while those with carts are designated as multi-family service.

The single-family collection service program provides each household with three collection bins. The bins are used to collect newspaper, mixed paper and containers, including plastic, glass, metal and polycoated paper. These materials are collected every-other-week at a cost of \$4.00 per month if the household subscribes to garbage collection service, or \$4.30 without garbage collection service. In addition to the materials collected in the bins, cardboard, metal and used oil are also regularly collected.

The multi-family collection service program provides each complex with 60- or 90-gallon collection carts, signage for the central collection areas, and in-home containers for storing and transporting materials to the central collection areas. The carts are used to collect newspaper, mixed paper and containers, including plastic, glass, metal and polycoated paper. These materials are collected every week at a cost of \$1.80 per month if the complex subscribes to garbage collection service or \$2.10 per month without garbage collection service. In addition to materials collected in the carts, cardboard, metal and used oil are also regularly collected.

Residents may also deliver their materials to transfer stations, public drop-off centers or newspaper and aluminum drop-off containers. Public drop off sites include:

- CRC's two transfer stations
- CRC's drop-off site in Camas/Washougal
- Air, Water, Earth Recycling

BFI, the previous contracted recycling hauler, discontinued the staffed, public drop-off site at Ridgefield in 1997 for economic reasons. The non-staffed, public drop-off sites at La Center and Hockinson were discontinued in March 1999 in conjunction with the start up of the curbside collection program. Clark County and CRC had sponsored the sites in Hockinson and La Center as a temporary means to provide rural residents with a relatively convenient location for recycling until the rural curbside collection program became available.

## **Non-residential Commercial) Recycling**

Non-residential (commercial) recycling represents approximately 40% of source-separated recycling in Clark County, with 51,645 tons recycled in 2000. This sector of recycling has undergone a significant regulatory change during the past few years.

Prior to 1994, Congress passed the "Federal Aviation Authorization Act of 1994" which included a rider that prohibited states from the economic regulation of intrastate trucking of property. Initially, it appeared that this prohibited the WUTC from regulating any recycling collection, including residential curbside recycling. It was determined later that the prohibition applied only to non-residential recycling collection.

Under deregulation, all non-residential recycling and collection of organics for composting may occur in a competitive market place. Solid waste haulers, disposal companies, private recyclers, private composters and scavengers are allowed to make collection arrangements with non-residential generators, adhering to following jurisdictional licensing requirements.

Clark County has a competitive non-residential recycling environment, with non-residential recycling services provided by a variety of service providers. Some operators specialize in paper fibers such as office papers or corrugated cardboard, or in wood wastes, while others offer a full array of services for most commodities. The County actively supports non-residential recycling through technical assistance programs and promotional educational materials. The degree of source separation required varies by vendor. Source-separated recyclables may be commingled (combined with other source-separated recyclables) to increase collection efficiencies. There is a distinction between source-separated, commingled recyclables and non-source separated garbage which may or may not contain a high percentage of recyclables. The commercially generated source-separated commingled loads are unregulated “recycling”; the non-source separated loads are regulated as “garbage”.

An example of non-residential recycling is seen with construction debris. If a drop-box is located at a construction site and only wood, metals and cardboard are deposited, the load and respective hauling and processing can be considered “recycling”. If floor sweepings, lunch waste and paint pails are added to that load, the entire load is considered “garbage.” The determination is based on whether the amount of garbage in the load is de minimus (so small it can’t be measured) and incidental the primary load of recyclables, else the entire load is really mixed garbage, containing some recyclable materials. This definitional issue has caused regulatory conflicts in the hauling and processing of commingled non-residential recyclables in Clark County. However, the intent of the generator to recycle, onsite containers for garbage (in addition to the recycling containers), education about allowable materials (e.g., signage) and the actual recycling of the materials in the load are additional points which help to clarify the issue.

### **Non-residential Organic Wastes**

There is currently no tracking or data collection mechanism in place for non-residential organics collection in Clark County. Some large institutional generators of yard debris, such as schools cities, parks, may self-haul their yard debris to centralized facilities, or, in some cases, practice on-site composting. Renderers offer some collection services for targeted materials, such as meat scraps and oils, but these materials have not been historically considered part of the solid waste stream, and therefore are not considered “recycling”. Some grocery store organic wastes may be recovered, although often informally and usually for animal feed. Portland/Metro-area Safeway stores, including those in Clark County, palletize and return their food waste to the company’s Clackamas County distribution center. There, the food waste is compacted shipping to Waste Management Inc’s Columbia Ridge facility for composting or other permitted processing capacity keeps these materials from being recovered. There is more discussion of these issues in the *Organic Wastes Chapter*.

### **Post Collection Recovery**

CRC’s transfer and disposal contract with the County requires the company to recover and recycle a portion of the incoming disposal stream. CRC’s original minimum annual recycling requirement was 20%, based on late 1980s waste composition data. The 20% requirement was based on the assumption that CRC could recover half of certain recyclables from the waste stream. The company must meet the recycling requirement or face financial penalties. If the requirement is exceeded, the contract specifies

certain performance bonuses. Due to an increase in source-separated recycling and a corresponding decrease in recoverable materials, as shown by the County's waste stream analysis, the 1996 CRC contract amendment changed the minimum annual recycling requirement to 10% of the incoming disposal stream. This requirement may change over time in response to the County's periodic waste composition analyses, if recovery potential increased or decreases significantly. These analyses will occur in 2003 and 2007.

CRC meets its minimum annual recycling requirement by recovering materials from selected loads on the tipping floor. Most recovery is wood and metal, pulled from loose drop-box or self-haul loads. Very little is recovered from compacted loads of mixed waste, due to contamination and operational difficulties. Source-separated materials delivered to CRC drop-off recycling facilities by self-haulers is counted toward the minimum annual recycling requirement; however, material recovered through CRC's source-separated recycling collection services and materials collected by County and city recycling collection contractors are not.

During the past few years, some attempts have been made to segregate "wet" and "dry" loads of refuse would have a higher recovery potential at CRC than if they were compacted and mixed with food waste and other contaminants. In early 1993, the County, CRC and The Disposal Group (now Waste Connections, Inc.) developed a "wet/dry" pilot program. The pilot started with a container-weight study and proceeded to identify 250 appropriate candidates for collection. In early 1994, collection and processing costs were reviewed by the County and the vendors. It was determined that to efficiently handle a "dry" stream, CRC's West Van Materials Recovery Center would need to be redesigned. The obstacles to developing a full-scale wet/dry system were substantial enough at that time to redirect both companies efforts towards expanded, source-separated recycling programs.

## **Needs and Opportunities**

To meet the State and County recycling goal of 50%, additional or enhance programs will need to be developed during the planning period. Better waste stream monitoring and measurement will help to quantify uncounted recycling and provide the County with a better assessment of what needs to be done. Continued waste stream monitoring will allow the County and cities to refine programs to capture more recyclables. The 1999 Waste Stream Analysis Study showed that a significant amount of recyclables was still being disposed.

### **Residential Recycling**

The addition or deletion of materials accepted by urban residential recycling collection programs will require on-going consideration. The evaluation of adding or deleting materials will be based on market stability, impact on collection and processing costs, impact on diversion levels and other factors. This evaluation will occur during collection contract renewal, in response to updated Waste Stream Analyses, or if initiated by staff or the Solid Waste Advisory Commission. It is unlikely that any existing recyclables would be dropped from the collection program. However, sudden shifts in commodity markets that either drastically drop market values (possibly below zero) or cause market conditions in which commodities cannot be sold at any price

might force the County and/or cities to omit certain materials. It is more likely that additional markets might become available for materials not currently recycled.

The County's 1999 waste composition analysis indicates that capture rates of materials handled by curbside collection programs could possibly be increase. A fair amount of paper, metal, glass and plastics are still present in the residential waste stream. The County and cities will need to consider potential policies for increasing existing collection programs, including additional economic incentives, disposal bans or other supporting policies. The increase capture of materials through existing programs could offer diversion at essentially no additional collection cost.

The County and CRC will need to continue to maintain compliance with DEQ and State of Washington requirements for urban residential recycling services. The County will need to ensure that collection frequency, the range of materials collected and the areas served continue to comply. The County also will need to ensure that urban residential recycling programs comply with the service level requirements of RCW 70.95.

Opportunities for co-collection, such as collection of garbage and recyclables in separate compartments of one vehicle or every-other-week collection, could be further explored when County or city collection contracts expire or are renewed. Changes in the collection system might lower the cost of collection and/or allow the more efficient collection of a broader range of materials.

The County and cities will have the opportunity to seek bids for recycling processing, starting in 2002. Competitive bidding might raise material revenues and lower customer costs, depending on the outcome.

## **Residential Organic Wastes**

The collection of post-consumer organics offers the largest remaining diversion potential from urban residential disposed waste. According to the County's 1999 waste composition analysis, residential single- and multi-family disposed waste includes a total of 27.7% post-consumer organics, including 9% non-recyclable paper; 20% food waste; and 4% yard debris. Urban single- and multi-family residents in Clark County disposed of 89,200 tons of waste in 1999. Thus 34% of that disposed waste, or 30,000 tons, represents the total amount of organic wastes that can be recovered by an urban residential collection program.

The County could consider the collection of residential post-consumer organics as a way to boost recycling and diversion levels. Post-consumer organics recovery would depend on an efficient collection system, as well as an in-county or regional in-vessel or enclosed composting capacity permitted to handle these post-consumer organics. Compostables, including food waste, compostable contaminated paper and yard debris, are the largest unrecovered component of the residential waste stream, according to the 1999 Waste Stream Analysis Study.

Opportunities for co-collection, such as collection of garbage and yard debris in separate compartments of one vehicle, could be further explored when County or city collection contracts expire or are renewed. Changes in the collection system might lower the cost of collection and/or allow more efficient collection of additional materials.

## **Non-Residential Recycling**

The County could consider policies to add support to existing source-separated recycling collection programs. These policies could include more education, promotion or technical assistance programs or material disposal bans. Commingled source-separated recyclable loads may increase as facilities are willing and able to process more effectively or as the variety of materials that can be recycled increases. The County will need to educate generators and haulers about the difference between source-separated recycling and “garbage”. This education and promotion will clarify which loads are subject to solid waste collection and disposal contracts and regulations. The County should increase its efforts to educate non-residential generators, especially construction and demolition generators, on recycling opportunities, as well as rules and regulations.

## **Post Collection Recovery**

CRC currently recovers recyclable materials from mixed solid waste by manually removing them on the tipping floor or the “dump and pick” method. No mechanized processing (such as trommels, screens, or magnetic or eddy-current separators) is currently used on the mixed solid waste received at either transfer station. CRC and the County will need to continue to evaluate the most efficient way to meet CRC’s contractual recovery requirements. As source-separated collection increase, tipping floor recovery may be reduced, CRC, the County, cities and haulers will need to continue to consider the economic and operational efficiencies of a non-source-separated wet/dry collection system that segregates garbage collection routes. If recovery targets are not adjusted downward to reflect the reduction in tipping floor recovery, CRC may need to consider alternative strategies, provided that they cost less than the contractual penalties for unmet recycling targets. CRC will also need to consider investing in additional processing capacities and/or charging variable tipping fees to capture loads of recyclable-rich waste that might otherwise leave the County system.

## **Alternatives**

*The Solid Waste Advisory Commission reviewed the following Alternatives:*

- 1. Public education and promotion for residential and non-residential recycling should continue, but should be examined for updating the messages.*
- 2. Periodically evaluate the range of recyclables handled by the recycling collection program to determine whether materials should be added or dropped.*
- 3. Review recyclable and yard debris collection programs to ensure that advancing technologies in commingling and co-collection are pursued to the fullest extent possible to minimize program costs and maximize diversion.*
- 4. Evaluate food waste collection to meet recycling and diversion targets.*
- 5. Continue to encourage non-residential recycling through incentives, technical assistance and recognition programs.*

6. *Develop educational strategies for the building and business communities, as well as the general public, which explain recycling, exclusive and non-exclusive loads, self-hauling, and lists authorized haulers and recyclers.*
7. *Coordinate with haulers, recyclers and CRC to enforce appropriate hauling and disposal or recycling of agreed upon defined recyclables.*
8. *Encourage contractors to make improvements in their ability to recover recyclables from non-source separated MSW.*

## Evaluation of Alternatives

1. *Public education and promotion for residential and non-residential recycling should continue, but should be examined for updating the messages.*

Participation could be further enhanced through education and promotion programs, as discussed in the chapter on *Education and Promotion*. Low levels of participation in some areas, as well as the presence of recyclables in the waste stream are indicators that there are opportunities for improvement and increased education could help.

2. *Periodically evaluate the range of recyclables handled by the recycling collection program to determine whether materials should be added or dropped.*

Changes to the range of materials collected through curbside collection programs could be initiated through several mechanisms:

- A need demonstrated through the County's waste composition analysis process;
- An evaluation conducted prior to collection contract renewal;
- A County SWAC-initiated process.

If materials are considered for addition to the curbside program, analysis would need to include a determination of the amount of material available in the County's waste stream, the effect on current separation by the customer (i.e., bin usage), the impact on collection efficiencies, processing requirements (at CRC or another facility) and market conditions and stability. If materials are considered for deletion from the program, the same factors would need to be considered, as would the reason for deletion and whether it may be temporary or capable of being offset by more aggressive marketing.

3. *Review recyclable and yard debris collection programs to ensure that advancing technologies in commingling and co-collection are pursued to the fullest extent possible to minimize program costs and maximize diversion.*

Alternatives for the co-collection of either garbage and recyclables or yard debris and recyclables are very limited. Co-collection is most successful when both streams are destined for the same facility. This is the case for the southwest portion of Clark County, but not necessarily the northern and eastern portions. While the County has the authority to contract for recycling collection, it does not have the authority to contract for garbage collection, which is a barrier for the co-collection of garbage and recyclables. Technological and/or regulatory changes in collection equipment and collection authorities could improve the feasibility of this option in the future.

#### *4. Evaluate food waste collection to meet recycling and diversion targets.*

Non-residential organics recovery offers a significant diversion potential, similar to the discussed under potential policies for urban residential organics. According to the County's 1995 waste stream analysis, approximately half of the County's disposed waste stream is non-residential in origin. The percentage of recoverable organics in the non-residential waste stream is lower than residential, 27.7% of residential versus 20.3% of non-residential. This could still offer cost-effective diversion if specialized composting facilities were available. Certain commercial sectors generate most of the organics present in the non-residential waste stream. Groceries, fresh food wholesalers, restaurants and institutional food service generate most food waste and other compostable organics. These sectors would have the ability to efficiently source-separate food waste, while offices, other retailers and other sectors have minimal and variable amounts of food waste. Targeted programs for these organic waste-generating sectors would yield the highest diversion at the lower cost. There is a fuller discussion of non-residential organic wastes in the *Organic Wastes* chapter.

The recycling potential of household organics is significant compared with other options for residential recovery. The few communities with both aggressive recycling and organics recovery programs have reached 60 to 70% diversion levels for those sectors served and far exceeded the state and Clark County 50% recycling goal. Alternatives for increasing recycling of residential organic wastes include:

- Enhancing participation;
- Expanded processing capacity;
- Collecting a wider range of organics;
- Co-collection of organics and garbage.

The County could work toward encouraging the private sector to establish additional regional composting or organic recovery capacity. This expanded capacity could include in-vessel or other facilities designed to handle post-consumer organics, depending on the level of local support for organics diversion. The evaluation of implementing residential food waste collection programs will include an assessment of availability and costs of specialized composting capacity, household containerization requirements and the degree of change to existing collection systems required to implement food waste recovery. There is a fuller discussion of organic wastes in the *Organic Wastes* chapter.

#### *5. Continue to encourage non-residential recycling through incentives, technical assistance and recognition programs.*

For businesses, incentives to recycle wastes include; reduced disposal costs, increased material handling efficiencies, monitoring and awareness of manufacturing process or operations waste, opportunity for recognition within their community, meeting internal or external environmental standards, etc. Incentive-based programs may be easier than mandatory recycling programs to implement within the Clark County region.

Business technical assistance visits should be continued, targeting specific geographic locations and business sectors, with additional attention given to the construction

sector. Technical assistance visits provide businesses with information on reducing, storing, using and disposing of hazardous products. Technical assistance visits also provide information about new waste reduction and recycling technologies that are not being used by the targeted businesses.

Awards and public recognition can be used to increase motivation to reduce and recycle waste. Awards honor individuals, organizations, institutions and businesses with information on reducing, storing, using and disposing of hazardous products. Technical assistance visits also provide information about new waste reduction and recycling technologies that are not being used by the targeted businesses.

6. *Develop educational strategies for the building and business communities, as well as the general public, which explain recycling, exclusive and non-exclusive loads, self-hauling, and lists authorized haulers and recyclers.*

For builders or businesses which work in various communities (cities, counties or even states), being aware of the regulations of the different jurisdictions can be problematic. Illegal hauling activity could occur through ignorance of the regulations, or through confusion about what is a legal activity, or merely to seek lower cost disposal. Education should be conducted by the County and cities, as well as by the haulers, which clarifies the above points and informs the building and business community of the available options and opportunities for recycling and disposal. Brochures could be distributed at the building permit counter; technical assistance visits, mailing and calls can provide the information in printed or verbal form; information can be provided to customers through billing or other customer contact opportunities.

7. *Coordinate with haulers, recyclers and CRC to enforce appropriate hauling and disposal or recycling of agreed upon defined recyclables.*

The County cities should educate and promote information to both generators and haulers about the respective roles and regulatory authorities for source-separated recycling and garbage collection and processing. Doing nothing and relying on certificated or contracted haulers and CRC to enforce their respective authorities has resulted in an erosion of the enforceability of WUTC-certificates and city hauling contracts as well as a reduced ability to meet the County's waste flow commitments to CRC. Criteria to determine if appropriate hauling is occurring are:

- It is the intention of the generator (and therefore the hauler) to recycle. Intent shall be evidenced by separate solid waste containers, education (signage and allowable materials), and the final disposition of the materials. (This method is also used by the WUTC to determine whether a "recycler" has infringed on a WUTC-certificated garbage hauler's rights.)
- All generators of solid waste are subject to comply with exclusive hauling ordinances unless they are self-hauling (Self-haul means the same as defined for "Private Carrier" under RCW 81.77. Self-haul means a person who, in his own vehicle, transports solid waste purely as an incidental adjunct to some other established private business owned or operated by him in good faith.)
- All loads are subject to exclusive hauling ordinances unless the materials in the load are source separated and are to be recycled, or, the materials are commingled in a load with no more than de minimus amounts of solid waste (or

residual that cannot be recycled) and are to be recycled. Any contamination level above de minimus would classify a load as “garbage.” (This would place the County and City of Vancouver with consistent policy). The final load as “garbage.” (This would place the County and City of Vancouver with consistent policy.) The final disposition of these loads are recycling facilities or energy recovery facilities for certain materials and there is no residual.

- Any materials collected for recycling shall not be landfilled.
- Materials and other special waste materials which are exempt by Washington State law, that is tires, commercially generated used oil and other hazardous waste materials, are also exempted from exclusive hauling ordinances. Landclearing materials, as defined with the 1994 Clark County Solid Waste Management Plan as “stumps, brush, vines, tree branches, mud, soil, sod, rocks, boulders, and similar materials,” if source separated from other wastes, is also exempt.

Education should be conducted by the County and cities, as well as by the haulers, which clarifies the above points and informs the building and business community of the available options and opportunities for recycling and disposal.

*8. Encourage contractors to make improvements in their ability to recover recyclables from non-source-separated MSW.*

Alternatives for post-collection recovery include the implementation of wet/dry routing systems for the non-residential sector and increased mechanization of CRC's West Van transfer facility. The economic evaluation of increased mechanization will depend on CRC's ability to cost-effectively meet its recovery requirements with its current “dump and pick” method of tipping floor recovery. As long as this recovery method meets CRC's contractual obligations, it is unlikely that increase mechanization could be justified by either avoided disposal costs or by revenues from the sale of recovered materials. This alternative may need to be reconsidered if CRC's original recovery target of 20% is restored or the target is otherwise raised at some future point.

Clark County and City of Vancouver have explored wet/dry routing alternatives with the previous ownership of the County's certified hauler. Under these routing systems, generators are not necessarily aware that they are being targeted for recyclable-rich loads of waste. The division between non-recoverable (wet) and recoverable (dry) loads is made by the hauler, based on the characteristics of the waste generator and the contents of their refuse container. Some mixed-use generators, such as an office building, can complicate attempts to implement wet-dry routing, since food service, offices and retail might be mixed and cross-contaminated in the same waste container. Another difficulty with wet/dry routing is the provision of suitable incentives to compensate haulers for increased routing complexity. CRC currently offers a discounted tipping fee for dropbox loads of uncompacted dry wastes, to compete with other operators for materials that might otherwise leave the County. But if CRC is meeting its recovery targets, then the company would have no economic incentive to encourage wet-dry separation by dropping its fees for compacted dry waste from commercial routes.

Alternatively, the County and cities could determine that wet/dry separation is important enough to cross-subsidize by raising wet waste tipping fees to compensate for lower dry waste tipping fees. The net effect could be revenue neutral for CRC, but would provide an incentive for haulers to modify their collection routes.

## Recommendations

*The Solid Waste Advisory Commission reviewed the complete list of Alternatives and has recommended the following Alternatives:*

- 1. Continue existing public education and promotion for residential and non-residential recycling.*
- 2. Periodically evaluate the range of recyclables handled by the recycling collection program to determine whether materials should be added or dropped.*
- 3. Review recyclable and yard debris collection programs to ensure that advancing technologies in commingling and co-collection are pursued to the fullest extent possible to minimize program costs and maximize diversion.*
- 4. Evaluate food waste collection to meet recycling and diversion targets.*
- 5. Continue to encourage non-residential recycling through incentives, technical assistance and recognition programs.*
- 6. Develop educational strategies for the building and business communities, as well as the general public, which explain recycling, exclusive and non-exclusive loads, self-hauling, and lists authorized haulers and recyclers. See the Enforcement Chapter for more information about the definition and regulatory structure.*
- 7. Coordinate with haulers, recyclers and CRC to enforce appropriate hauling and disposal or recycling of agreed upon defined recyclables.*
- 8. Encourage contractors to make improvements in their ability to recover recyclables from non-source-separated MSW.*